HAZARDOUS WASTE SITE INVESTIGATION

S.K.W. Alloys, Inc.
Niagara, New York

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Gill Creek, a small perennial stream, is located approximately 0.5 miles west of the site and flows north - south to the Niagara River.

Description of the Surrounding Area

The site is located within an area of Niagara which is zoned for heavy industry. The nearest residential area is approximately 0.3 miles south. Gill Creek, an intermittent stream, is the nearest surface water body. Located 0.5 miles west of the site, the creek flows into the Niagara River.

Distance and direction to the nearest water supply has not been determined. There are, however, no potable wells in the immediate site vicinity.

Geology and Groundwater

The site area slopes gently in a south-southeast direction. An engineering report prepared in connection with an application for a state solid waste permit provides the following information.

1. Bedrock underlying the site is Lockport Dolomite $Ca\ Mg\ (C\ O_3)_2$ with minor amounts of sulfate and sulfide minerals. Variations in the ecosional surface result in local differences in the dip of the bedding and contour of bedrock surface.

2. A layer of dense loamy glacial till, varying in thickness from 2 to 7 feet, overlies the site's bedrock. Composition of this material ranges from clay and silt to gravel and occasional boulders.

3. Borings taken on site indicate the presence of fill-type materials of varying depth (1.3 - 9.0 feet) and type (loose powdery to coarse size slag).

The same report details several features of the site hydrogeology:

1. Groundwater on the site exists under two conditions.

   a) artesian - water rises above the till layer and in some cases, above the groundwater levels in the lacustrine silty-clay.

   b) water table (unconfined aquifer) is characteristic of the silty-clay unit.

Since Airco Alloys assumed control of the site in 1964, the primary waste constituent has become baghouse dust from a ferroalloy factory. The approximate composition of this material breaks down as follows: (Airco, Inc. 1979)

CONSTITUENT	%
SiO_2	80
MgO	9
Al_2O_3	3
Fe_2O_3	2
Other	6
pH	9-11

Copper, zinc, chromium, cobalt, manganese and nickel are also present in varying amounts. At present, an estimated 398,000 tons per year of baghouse dusts are disposed. In addition, the site also accepts FeCr and FeCrSi slags. These materials are inert, having been formed at temperatures over 3,000°F, and consist of metallic oxides tapped from the ferroalloy manufacturing process. (Letter dated 6/28/79 to DEC, Region 9 from Airco, Inc.).

From 1920 to 1964, the site was used by the Vanadium Corporation of America for the disposal of similar materials.

Description of Dump Site

Approximately 37 acres in size, the S.K.W. site is located on Witmer Road, a highly industrialized area of Niagara, New York. Site coordinates are latitude 43° 07' 24" N and longitude 79° 01' 36" W. Structures on the site include a metallurgical laboratory as well as engineering, administration, and storage buildings. The site is active, and currently received approximately 398,000 tons/ year of baghouse dust from a ferroalloy factory.

Site boundaries are as follows:

North: Niagara Mohawk Power Company right of way
South: Niagara Mohawk Power Company

East: Airco Properties, Inc.

West: Witmer Road

Discussion of Imminent Hazard Aspects of Site

Data from the Niagara County Health Department (NCHD) indicate contamination of two private wells in the area of the site. The owners, two trucking companies, were advised by NCHD to switch to bottled water.

Background information from wells monitored in connection with an engineering report indicate iron, lead and manganese levels exceeding quality standards for Class 6A groundwater (a drinking water classification).

Data from landfill monitoring wells indicate combined levels of iron and manganese above the recommended concentration of 0.5 mg/l. Down gradient monitoring wells show iron and manganese levels above those for Class 6A groundwater.

Sampling data also indicates contamination of surface water (storm runoff) entering the site. (analytical results will be discussed more fully in the section "Sampling and Chemical Analysis of Samples".)

Background

EPA learned of this site through the March 1979 draft report of the Interagency Task Force.

Sources consulted included George Radan, EPA Region II; the EPA Hazardous Waste Site dossier compiled by Zack Dobbs (2/26/80); a report prepared by Airco, Inc. in connecton with a solid waste management facility permit; and Jack Tygert, New York DEC.

Prior to 1964, the site was used by the Vanadium Corporation of America for disposal of ferrochrome silicon and ferromanganese slags, as well as ferrasilicon and ferrochrome silicon dusts.

Since 1964, the site has been owned by Airco Alloys and has received similar materials. At present, the eastern half of the site belongs to Airco, and the western half to S.K.W.

Nature of Materials Disposed at the Site

From 1920 to 1964 the Witmer Road site was used by the Vanadium Corporation of America. During these years, it is estimated that approximately 594,000 tons of slag (assuming 70 percent reclamation) and 88,000 tons of brick, wood and ash refuse were dumped.

2. Two distinct sets of groundwater conditions exist in the dolomite:

   a) a moderately permeable zone at the top of the rock (10-15 feet thick) is characterized by both vertical and bedding joints that have been widened by solution and by gypsum cavities.

   b) the remainder of the formation consists of bedding joints surrounded by essentially impermeable rock.

3. Examination of the site boring logs indicates a layer of industrial fill varying in thickness from 1.3 to 9.0 feet. This material consists mainly of slag, cinders and fly ashes.

Sampling and Chemical Analysis of Samples

The preparation of the previously mentioned engineering report also involved monitoring of ground and surface waters, in regard to both Airco and S.K.W. properties.

1. Surface Water: In order to determine contamination by site runoff, monthly grab samples were taken at two locations in Gill Creek. The first monitoring point was located at the entrance to the property, while the latter was situated where the stream exits the site. Total chromium levels over three consecutive months exceeded the .10mg/l level stipulated by New York State.

2. Ground Water: Five sample points were monitored on a monthly basis in order to determine both background and downstream groundwater quality. Based on these analyses, the Airco report reached several tentative conclusions:

   a) Lead concentrations in excess of the .025 mg/l New York standard are consistently found in background samples, with no significant increase in downgradient wells.

   b) Iron concentrations greater than 1mg/l can, in most cases, be attributed to the well's steel casing.

   c) Manganese concentrations exceeding 0.3 mg/l were observed in groundwater entering through the northern boundary of the site. In some cases, especially well #2, the levels detected indicate that some manganese may be contributed by landfill leachate.

The Niagara County Health Department (NCHD) has monitored private wells in the area. Two wells, owned by trucking companies, have been classified as contaminated. The first one shows fecal coliform in excess of 6500 mpn/100ml and 0.263 mg/l total volatile chlorinated organics. The second shows fecal colform values ranging from zero to levels too high to measure. Owners of both wells have been advised to switch to bottled water.

Status of Local and State Involvement

As of 5/30/80, S.K.W. Alloys holds a New York State DEC permit (No. 2133) to operate a solid waste management facility. There have been no regulatory or enforcement actions in regard to this site.